

While the FCC appears to accept that a 1dB increase in noise can significantly effect capacity (para 76 of FCC 03-33) this is later disregarded citing a previous case. This, however, related to a safety service where a higher safety margin would have been expected. Commercial or ad-hoc devices will be making the maximum possible use of the low noise floor, and therefore even a 1dB rise could be highly significant.

In fact the noise rise could be rather larger, especially if one considers the higher peak UWB limits. This seems to have been given remarkably little attention (except by NTIA with regards government services.) The assumption has been that PRF will be high and peak limits not relevant, but reasons are now emerging why UWB may exploit the high peak limits with low prf (eg range.) Reducing prf enables higher peak, keeping the mean power the same. The higher peak powers (0dBm/50MHz) will clearly cause interference at a greater distance than -41dBm/MHz, albeit for shorter periods. At this distance, victim radio services will lose a packet of data for each UWB pulse, the effect of which will depend on the coding and the service. Clearly services in the 5GHz band and video/audio services will be especially vulnerable.

Therefore I would not support an extension of low PRF systems as proposed by MSSSI. Furthermore the peak limits should be tightened by requiring measurement at 1MHz (ie -34dBm) and not allowing 50MHz measurements.

Frequency hopping should be permitted provided hopping is switched off for the peak measurements (in the same way that FCC requires gating to be off).

Finally FCC should consider tighter limits for bands which will be used by mobile services (ie short distance from UWB) eg 5GHz, the new 3.7GHz band etc, rather than rely on voluntary IEEE standards. Otherwise UWB will cause a reduction in the overall capacity in dense areas, which would be contrary to the public interest.